DATA ANALYSIS

REPORT

ON

ASSOCIATE PERFORMANCE DATA

FOR

ANTARCTICA GLOBAL

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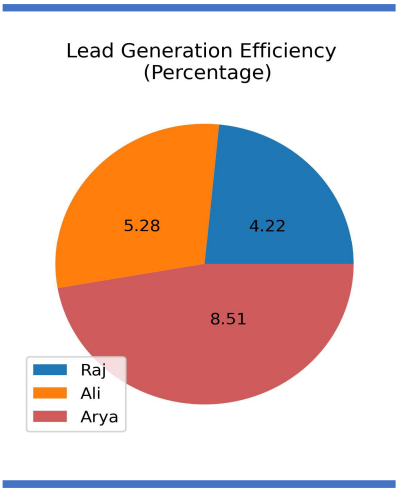
INTRODUCTION:

Here, we'll have a look at answers to the questions asked in the problem statement. We can observe unique colour for each associate to understand their performance based on different parameters. The observation and different graphs plotted below provides a visual representation to each question's answer identified by a thorough analysis of the data, this will help us evaluate each associate's performance much better than just mere numbers.

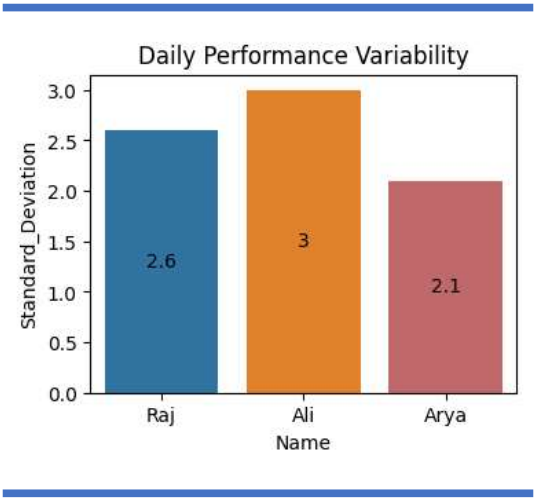
1. Lead Generation Efficiency:

The lead generation efficiency is calculated for each associate as the ratio of total leads generated to the total time spent on lead generation (in minute). The Pie chart visualizes the Lead Generation Efficiency as a percentage for each individual. From the chart, we conclude that Arya has the highest efficiency (8.51%) followed by Ali with an efficiency of 5.28% and Raj with an efficiency of 4.22%.



2. Daily Performance Variability:

The standard deviation of the daily number of leads generated by each associate will help us determine the variability in lead generation by each associate.

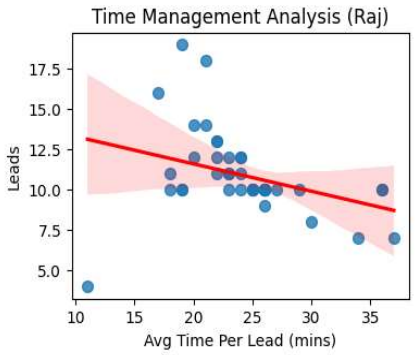


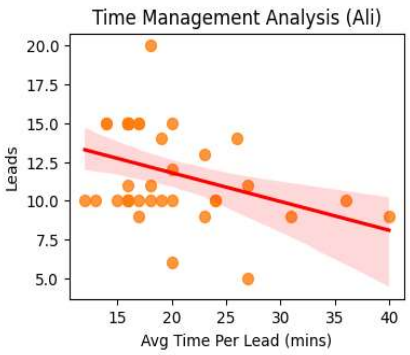
The Bar chart plotted after the analysis of the dataset suggests that Ali has the highest variability in daily lead generation with a standard deviation of 3 followed by Raj with standard deviation of 2.6 and Arya has the lowest standard deviation measuring to 2.1.

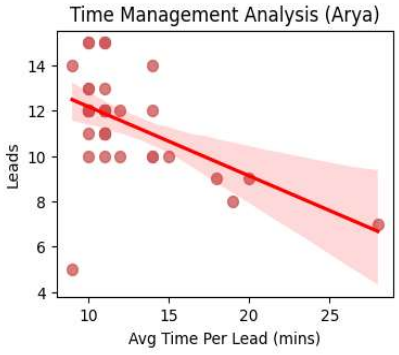
This suggests that Arya was more consistent with generating leads during her time compared to Raj and Ali. Ali shows the highest variability in lead generation suggesting inconsistency in daily lead generation that could have happened due to factors like other official activities, personal leaves etc.

3. Time Management Analysis:

Here, we'll observe the relationship between the average time per lead and the total number of leads generated per day for each associate.



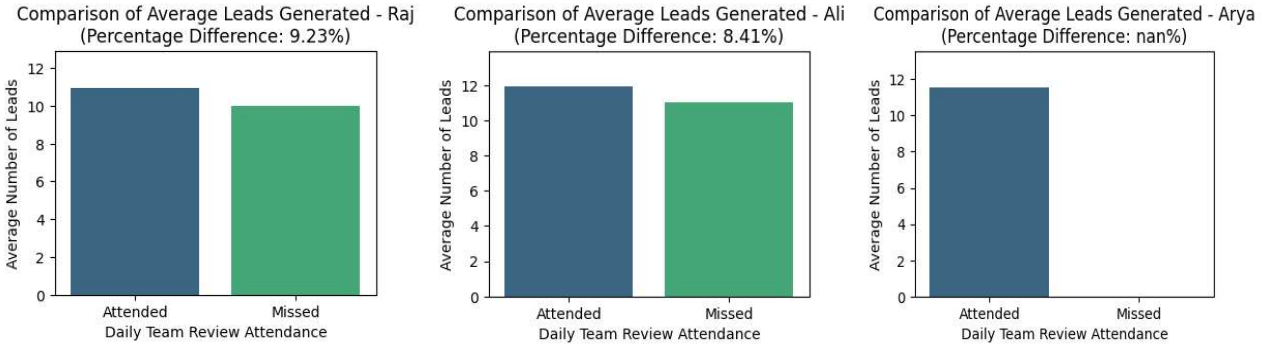




- The scatter plot shows the number of leads generated based on the average time spent. The red line (Best-fit line based on Linear Regression) shows a negative correlation between the columns.
- We can observe that Arya has more efficiency since she has denser dots on maximum Leads generated within minimum time of 15 minutes. On the other hand, Raj and Ali takes around 20-25 minutes.
- Based on time, for generating leads more than 10, Arya needs 15 minutes while Raj requires more than 20 minutes and Ali needs more than 15 minutes.

4. Average Leads Generated based on Daily Team Reviews:

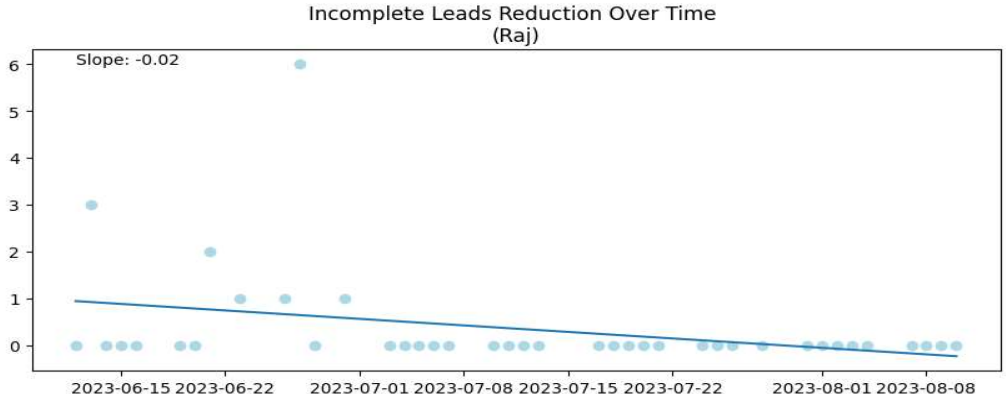
Comparing the average number of leads generated on days when daily team reviews were attended versus missed for each associate.



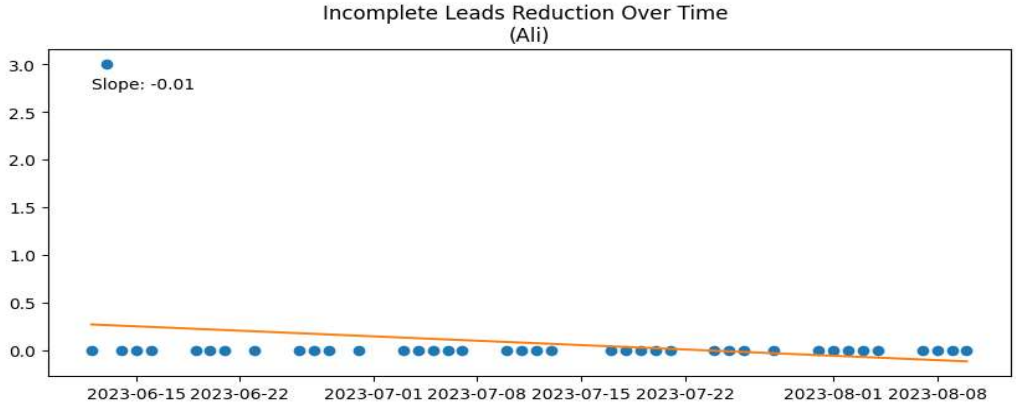
The observation suggests that there is no major change in performance based on attendance of Daily Team Review among Raj and Ali. However, no missed data for Arya could be because she attended every review or no review happened (weekend or other official reasons).

5. Incomplete Leads Reduction Over Time:

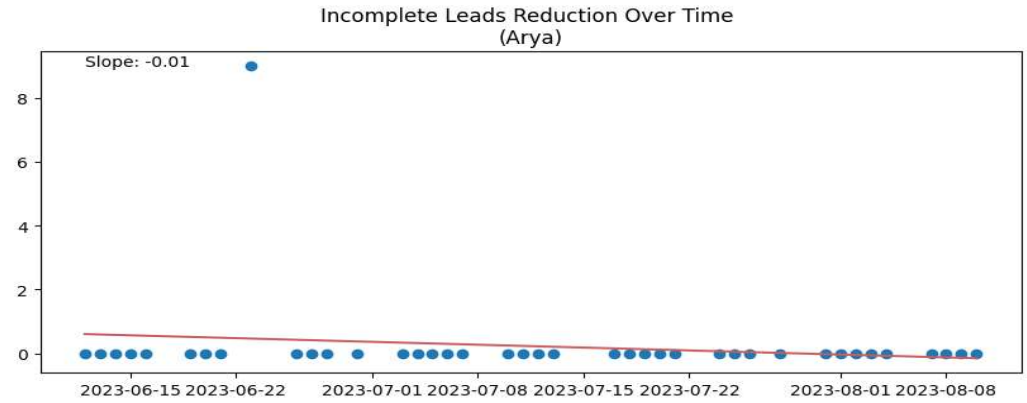
Here, we'll analyze the trend (using a linear regression model) of the number of incomplete leads over time for each associate.



For Raj, we can observe that he initially had a lot of incomplete leads which decreased to 0 since July and has had none incomplete since.

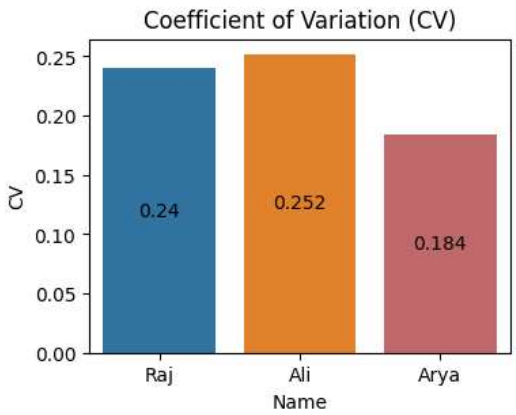


For Ali, he had 3 incomplete leads in initial days. However, since then he has had no incomplete leads.



For Arya, we can notice that she has had 9 incomplete leads after a week of starting. Otherwise, she was consistent and there were no incomplete leads.

6. Performance Consistency:

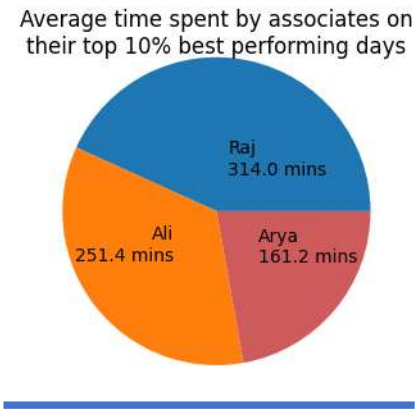


The coefficient of variation (CV) for the daily leads generated by each associate will help us understand performance consistency.

- Arya has the lowest Coefficient of Variability (CV) with 0.184 (18.4%) when compared to Raj (24%) and Ali (25.2%).
- Thus, Arya was the most consistent associate based on performance.

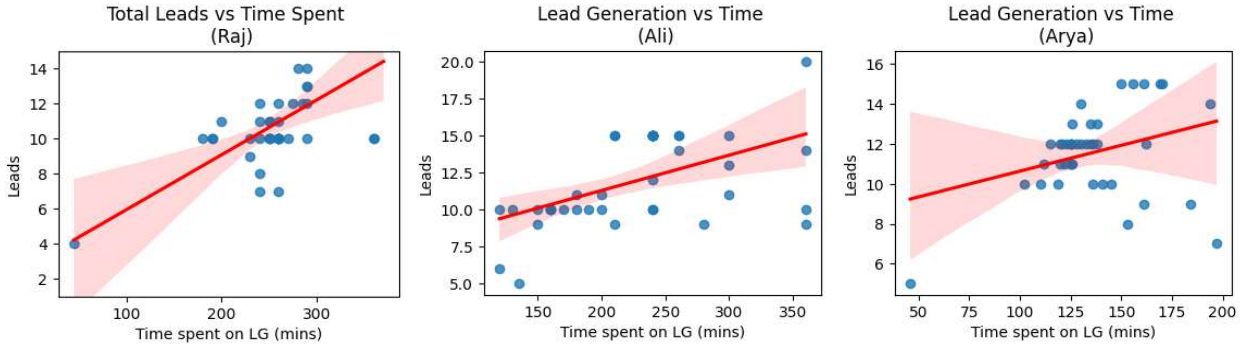
7. High-Performance Days:

Analyzing the average time spent on lead generation by each associate on their top 10% of days with the highest lead generation.



- Arya spent an average of 161 minutes (2.5 hours) on her top 10% best performing days while Ali spent 251 minutes (4.1 hours) and Raj spent 314 minutes (5.2 hours).
- Considering the number of days, Arya and Raj both have 5 days as their top 10% while Ali has 14 days as top 10% best performing days.
- Ali and Arya generate maximum of 15 leads while Raj generates an average of 16 leads during his 5 best performing days.

8. Impact of Longer Lead Generation Time:



Threshold time beyond which the lead generation significantly increased:

Associate	Time Spent (minutes)	Time Spent (hours)
Raj	240	4
Ali	160	2.67
Arya	120	2

Optimal time that must be spent for maximum leads would be 173 minutes or around 3 hours.

9. Comparative Day Analysis:

On comparing the average leads generated on weekdays and weekends for each associate, there was no major disruption in lead generation. However, observe that Raj worked a weekend.

	Raj	Ali	Arya
Weekdays	9.58	10.84	10.53
Weekends	1	0	0

10. Predictive Analysis:

I developed a simple Linear Regression model to predict the number of leads each associate is expected to generate based on their time spent on lead generation, as required. The VS Code output cell snippet of Mean Squared Error (MSE) and R^2 Score shows the accuracy of model for the values of each associate.

- Lower MSE means lower the distance between predicted and actual value.
- Higher R^2 Score means better the model is in predicting the actual value.

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Metrics for Raj's leads:
        Mean Squared Error (MSE): 0.28
        Root Mean Squared Error (RMSE): 0.52
        R² Score: 0.95


Metrics for Arya's leads:
        Mean Squared Error (MSE): 0.21
        Root Mean Squared Error (RMSE): 0.46
        R² Score: 0.90


Metrics for Ali's leads:
        Mean Squared Error (MSE): 0.42
        Root Mean Squared Error (RMSE): 0.64
        R² Score: 0.91
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RECOMMENDATIONS:

- The associates generate similar number of leads however, we observed that Raj takes more than optimal time to generate leads. We must find what causes Raj the need of more time. Could be other official works or the area he's working in. Finding the cause may help us get most out of Raj like he performed on his top 10% best performing days.
- Ali generated 20 leads on 28th July working 6 hours, and has the most number of top 10% best performing days (14 days) generating 15 leads rest of the 13 days. We could offer him to work for 1-2 hours extra to get most out of him, offering him some extra perks.
- Arya has shown most consistent and efficient performance. She should be awarded to keep her cheerful.